

**Amendments to the Specification:**

After the title and before the first line of the specification, please add the subheading:

**Background of the Invention**

Please amend the first paragraph of page 1 as follows:

The invention relates to a method for producing the rotor of a drag vacuum pump ~~according to the characteristics of patent claim 1. Moreover, the invention relates to a~~ and the rotor produced according to this method.

Please amend the second paragraph of page 1 as follows:

It is known to produce the individual blades of a rotor of a turbomolecular vacuum pump in ~~that~~ the outer surface of a cylindrical blank (preferably of aluminum). Radial ~~is provided with radial~~ peripheral grooves and axially oriented grooves, ~~such that blades~~ are created in planes perpendicular with respect to the axis of rotation. In order to attain blades exhibiting an effective pumping action, each of the multitude of blades needs to be subsequently set. Generally the blades ~~shall~~ have differing angles of attack/setting angles depending on their distance with respect to the inlet. The known production method does not allow for further variations of the blade profiles.

Please amend the last (third) paragraph of page 1 as follows:

Moreover, it is known to prepare the blades by milling these from the surface of a blank, such that subsequent setting ~~will no longer be~~ is not required. This manufacturing procedure involves long processing times, particularly since it is desirable that the blades of different blade rows exhibit differing blade profiles and/or angles of attack.

After the first paragraph of page 2, please add the subheading:

**Summary of the Invention**

Please amend the second paragraph of page 2 as follows:

~~In accordance with the invention this task is solved through the characterising features of the patent claims.~~ The invention allows the formation of rows of blades exhibiting differing angles of attack or blade profiles in a simple manner through metal cutting operations. This can be achieved in such that the pitch of the thread grooves is varied in accordance with the desired conditions. By applying the methods according to the invention the milling times may, in addition, be reduced to a minimum, respectively milling can be replaced completely by turning operations.

After the second full paragraph on page 6, please add the following paragraph and subheading as follows:

Still further advantages of the present invention will be appreciated to those of ordinary skill in the art upon reading and understand the following detailed description.

**Brief Description of the Drawings**

Please amend the third full paragraph of page 2 as follows:

Further advantages and details of the present invention shall be explained with reference to the examples of embodiments depicted in the drawing figures and 1 to 9<sup>[[1)]</sup>]] as follows:

Please delete the Translator's note in its entirety and amend the fourth paragraph/subparagraph as follows:

~~<sup>4)</sup> **Translator's note:** The German text states "8" here whereas "9" would be more in line with the drawing figures. Therefore the latter has been assumed for the translation.~~

~~Depicted are in~~

~~drawing figures~~ Figures 1 to 4 are side views illustrating much schematised rotors, manufactured in accordance with the present invention, whereby the rotors in accordance with the ~~drawing figures~~ Figures 1 and 2 are depicted in their semi-finished state,

Please amend the first two subparagraphs of page 3 as follows:

~~drawing figures~~ Figures 5 to 7 illustrate rotors with greater detail, manufactured in accordance with the present invention, whereby the rotor In accordance with ~~drawing figure~~ Figure 5 is depicted in its semi-finished state, ~~as well as~~

~~drawing figures~~ Figures 8 and 9 partial sections through drag vacuum pumps with rotors manufactured in accordance with the present invention.

After the second subparagraph on page 3, please add the following subheading:

#### **Detailed Description of the Preferred Embodiments**

Please amend the third paragraph (first main paragraph) of page 3 to read as follows:

In all ~~drawing figures~~ Figures, the rotor is in each instance designated with 1 and its hub with 2. In the instance of completed rotors at least a section of the hub 2 supports rows of blades 4 separated by peripheral grooves 3, whereby the individual blades are in each instance designated as 5, !n the assembled state (~~drawing figures~~ Figures 8 and 9)[<sup>2)</sup>] the rows of stator blades 9 engage in the peripheral grooves 3. The rotation of the rotor 1 effects the desired pumping of gases from the suction side 11 to the delivery side 12 of the rotor 1.

Please delete the Translator's note in its entirety and amend the fourth paragraph (second main paragraph) of page 3 as follows:

<sup>2)</sup> ~~Translator's note: The German text states "(drawing figures 7 and 8)" here whereas "(drawing figures 8 and 9)" would be more in line with the drawing figures. Therefore the latter has been assumed for the translation.~~

~~Drawing figures~~ Figures 1 to 3 depict the manner in which a rotor 1 can be manufactured according to the present invention. Initially [[a,]] for example, a cylindrical blank is provided either with thread grooves 13 (~~drawing figure~~ Figure 1) or with radial peripheral grooves 3 (~~drawing figure~~ Figure 2). After this step there is created in each instance the hub 2 of the rotors 1. The hub 2 according to ~~drawing figure~~ Figure 1 carries one or several thread ridges 14, the hub 2 according to ~~drawing figure~~ Figure 2 carries peripheral radial ridges 15.

Please amend the first paragraph of page 4 as follows:

Thereafter the rotor 1 according to ~~drawing figure~~ Figure 1 is provided with the peripheral grooves 3, and the rotor 1 according to ~~drawing figure~~ Figure 2 is provided with thread grooves 13. Thus in the instance of both methods the rotor 1 according to ~~drawing figure~~ Figure 3 is created. On the hub 2 there remain blade rows 4 separated by the peripheral grooves 3. The profiles (width, length, cross-section) and the angles of attack of the blades 5 of a row of blades 4 depend on the width and the depth of the adjacent grooves 3, 13 as well as on the pitch of the thread grooves 13 at the level of the respective row of blades 4.

Please amend the second paragraph of page 4 to read as follows:

~~Drawing-figure~~ Figure 4 depicts a rotor 1 which exhibits along its entire height thread grooves/ridges 13, 14. Only at its upper section are radial peripheral grooves 3 provided in addition. Through these measures, a one-piece rotor 1 for a drag vacuum pump is created, which is designed section-wise (on the intake side) as a turbomolecular pump and (on the delivery side) as a molecular pump (Holweck pump). From ~~drawing~~ Figure 4, it is finally apparent that the pitch and above all the changes in pitch for the thread ridges 14 can be selected freely so that the pumping properties may be adapted precisely to the pressures prevailing at each point of the pumping channel.

Please amend the last paragraph of page 4 which carries over to page 5 as follows:

~~Drawing-figures~~ Figures 5, 6 and 7 depict a rotor 1 in which the thread ridges 14 exhibit a constant pitch across the entire height of said rotor. ~~Drawing-figure~~ Figure 5 depicts the rotor 1 in its semi-finished state; it exhibits only thread ridges 14, respectively thread grooves 13. ~~Drawing-figures~~ Figures 6 and 7 depict various views (~~drawing-figure~~ Figure 6 is a side view, ~~drawing-figure~~ Figure 7 is a view at an angle from below) of the finished rotor 1. After manufacturing of the thread grooves 13, the radial peripheral grooves 3 have been manufactured by turning.

Please amend the first and second full paragraphs of page 5 as follows:

~~Drawing-figure~~ Figure 8 depicts a sectional view through the active pumping area of a turbomolecular pump 21. Stator blades 9 engage in the radial peripheral grooves 3 of the rotor 1 manufactured in accordance with the present invention. A cylindrical stator 22 with stator rings and blade rings serves, in a known manner, the purpose of supporting the stator blades 9. The depth of the peripheral grooves 3 decreases from the intake side 11 towards the delivery side 12. The same applies correspondingly for the length of the effective pumping blades of the row of

biades 9. The result is a pumping cross section which decreases from the intake side towards the delivery side. The method ~~in accordance with the present invention~~ allows ~~to~~ the manufacture, in a simple manner, of a rotor 1 with the pumping properties described or also with other pumping properties.

In the embodiment according to ~~drawing figure~~ Figure 9, only the intake section of the pump 21 is designed by way of a turbomolecular pump. The section on the delivery side is equipped with thread grooves/ridges 13, 14 with their width/height reducing towards the delivery side. Jointly with the inner surface of the stator 22 said section on the delivery side forms a Holweck pump, Also indicated is a third pumping stage 23, located downstream of the Holweck pumping stage of the rotor 1. Said third pumping stage comprises a thread 24 sunk into the stator 22, whereby said third pumping stage forms a further Holweck stage with the cylinder 25 affixed to the rotor 1.

After the last line of page 5, please insert the following paragraph:

The invention has been described with reference to the preferred embodiments. Modifications and alterations may occur to others upon reading and understanding the preceding detailed description. It is intended that the invention be constructed as including all such modifications and alterations insofar as they come within the scope of the appended claims or the equivalents thereof.

On page 6, please delete the duplication of the title in its entirety:

**~~Method for Producing the Rotor of a Drag Vacuum Pump and a Rotor Produced According to this Method~~**

On page 6, after the heading "Patent Claims", please insert the following paragraph:

Having thus described the preferred embodiments, the invention is now claimed to be:

On page 7, please delete the Translator's note in its entirety as follows:

~~<sup>3)</sup> **Translator's note:** The German text states "812)" here whereas "(12)" would be more in line with the drawing figures. Therefore the latter has been assumed for the translation~~